

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

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In re application of: Gregg E. SKOW Group Art Unit: 2167
Serial No.: 10/627,492 Examiner: K. M. Lovel
10 Filed: July 25, 2003 Confirmation No.: 4206
For: MULTIPLE SYSTEM COMPATIBLE DATABASE SYSTEM AND METHOD
15 Docket No.: H0003921
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APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

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Sir:

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Appellant hereby submits its Appeal Brief in response to the final rejection of the subject patent application.

The Commissioner is hereby authorized to charge Ingrassia, Fisher & Lorenz, Deposit Account No. 50-2091, \$500 for the filing of this Appeal Brief.

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I. Introduction

This is an Appeal Brief under 37 C.F.R. § 41.37 appealing the rejections set forth in the final Office action dated April 9, 2007. Each of the topics required by 37 C.F.R. § 41.37 is presented in this Brief and is labeled appropriately.

II. Real Party in Interest

Honeywell International, Inc. ("Honeywell") is the real party in interest of the present application. An assignment of all rights in the present application to Honeywell was executed by the inventors and recorded by the U.S. Patent and Trademark Office at

5 **Reel 014342, Frame 0163.**

III. Related Appeals and Interferences

There are no appeals or interferences related to the present application of which Appellant is aware.

IV. Status of Claims

Claims 1-29 and 37-49, which are presented in the Claims Appendix, are pending in the application. Each of Claims 1-29 and 37-49 stand finally rejected, each of Claims 30-36 have been canceled. Accordingly, the Appellant hereby appeals the final rejection

5 of Claims 1-29 and 37-49.

V. Status of Amendments

No amendments following the final Office action of April 9, 2007 have been filed.

VI. Summary of Claimed Subject Matter

The subject matter of independent Claim 1 relates to a program product that includes a database (110) and at least one physical computer-readable medium (112).

5 The database (110) is compatible with multiple end-user systems (102-1, 102-2, 102-3, . . . 102-N) and includes a data section (306) and a structure section (304) (pg. 6, ll. 18-30; pg. 8, ll. 4-9; FIG. 3). The data section (306) includes a plurality of data records (204-1, 204-2, 204-3, . . . 204-N) (pg. 8, ll. 6-9) and the structure section (306) includes at least a feature mask (210) that includes data that indicates whether a particular one of the data records is compatible with one or more of the end-user systems (pg. 7, ll. 21-27; pg. 10, 10 ll. 29-31; FIGS. 2, 3). The at least one physical computer-readable medium has the database stored thereon.

The subject matter of independent Claim 15 relates to a method of generating a database (110) that is compatible with multiple end-user systems (102-1, 102-2, 102-3, . . . 102-N), and includes generating a data section (306), storing a plurality of data records (204-1, 204-2, 204-3, . . . 204-N) in the data section (pg. 8, ll. 6-9), and generating a feature mask (210) that includes data that indicates whether a particular one of the stored data records is compatible with one or more of the end-user systems (pg. 7, ll. 21-27; pg. 10, ll. 29-31; FIG. 2).

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The subject matter of independent Claim 37 relates to a computer system (100) that includes a processor (104), memory (112) in operable communication with the processor, and a database (110). The database is stored in the memory (pg. 6, ll. 8-9), is

compatible with multiple end-user systems (102-1, 102-2, 102-3, . . . 102-N) (pg. 6, ll. 18-30), and includes a data section (306) and a structure section (304) (pg. 8, ll. 1-2; FIG. 3). The data section includes a plurality of data records (204-1, 204-2, 204-3, . . . 204-N) (pg. 8, ll. 6-9). The structure section includes a feature mask (210) that includes data that
5 indicates whether a particular one of the data records is compatible with one or more of the end-user systems (pg. 7, ll. 21-27; pg. 10, ll. 29-31; FIG. 2).

The subject matter of independent Claim 49 relates to a flight management system that includes memory (112), a navigation database (110), and a processor (104).
10 The navigation database is stored in the memory (pg. 6, ll. 8-9), is compatible with multiple flight management systems (pg. 6, ll. 18-30), and includes a data section (306) and a structure section (304) (pg. 8, ll. 1-2; FIG. 3). The data section includes a plurality of navigational data records (204-1, 204-2, 204-3, . . . 204-N) (pg. 8, ll. 6-9), and the structure section includes a feature mask (210) that includes data that indicates whether a
15 particular one of the navigational data records is compatible with one or more of the flight management systems (pg. 7, ll. 21-27; pg. 10, ll. 29-31; FIG. 2). The processor is configured to generate an aircraft flight plan based at least in part on the navigational data stored in the navigation database (pg. 1, ll. 13-25; pg. 23, ll. 9-10).

VII. Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection to be reviewed in this appeal are as follows:

1. Whether Claims 1-29 and 37-48 are unpatentable under 35 U.S.C. § 103
5 over U.S. Patent No. 6,879,976 (Brookler et al.) and U.S. Patent No. 6,804,664 (Hartman
et al.).

2. Whether Claim 49 is unpatentable under 35 U.S.C. § 103 over U.S. Patent
No. 6,134,500 (Tang et al.) and Hartman et al.

10

VIII. Arguments

I. CLAIMS 1-29 AND 37-48 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 103 OVER BROOKER ET AL. AND HARTMAN ET AL.

5

A. Brookler et al.

Brookler et al. relates to a system and method of indexing data using bit vectors, and discloses a database management system having data stored therein in tables defined by a stored schema. Brookler et al. further discloses the use of a bit vector index (BVI) to
10 augment the standard indexing schem of a typical relational database management system. According to Brookler et al., a BVI is a collection of bit vectors (BVs) that comprise an index for a particular column in a table of the database (col. 4, ll. 62-66). More specifically, a BVI is created for each matching column pair that relates a lookup field in an indexed table to a set of values in a lookup table (col. 5, ll. 8-10). In a
15 preferred embodiment, a BVI is an array structure, such as BVIs 303 and 304, that includes multiple entries, with each entry containing a BV and the indexed value being a pointer into the array (col. 6, ll. 10-13). Thus, each BV of a BVI identifies the records in an indexed table that correspond to one particular value in a lookup table (col. 6, ll. 18-20).

20

B. Hartman et al.

Hartman et al. relates to a database that is structured to enable faster, more efficient queries. To do so, the data to be stored in the database is characterized as a

number of questions, and each record in the database comprises bit map groups that correspond to the answers to the questions. The answers may be binary attributes, range attributes, and string attributes, depending on the question type. With this type of structure, database queries are obtained by simple bit-wise Boolean operations of the records in the database, beginning first with binary attribute matching, then range attribute matching, and finally string attribute matching. With each attribute matching operation, various of the records in the database are eliminated from the query, thus making the query more efficient (col. 8, l. 9 through col. 12, l. 11).

10 C. Analysis

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988). Indeed, the Examiner has the burden of setting forth a detailed evidentiary basis for the teaching, suggestion or motivation to combine the cited references. Indeed, as the Supreme Court recently
15 reiterated, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” KSR International Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007). A claim cannot be found *prima facie* obvious unless all of the claim elements are either taught or suggested in the cited art or form part of the knowledge of one of ordinary skill
20 in the art, or all of claim elements are obvious from the nature of the problem itself. In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999) (emphasis added); In re Wilson, 424 F.2d 1382, 1385 (C.C.P.A. 1970) (“All words in a claim must be considered in judging the patentability of that claim against the prior art.”).

Moreover, it is well-settled that, in order to avoid succumbing to the temptation of reliance on hindsight, the teaching or suggestion to make the claimed combination must not be found in an applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Although it is recognized that any determination of obviousness is, in a sense, based on hindsight reasoning, if the determination does not take into account only knowledge within the level of ordinary skill in the art at the time the claimed invention was made, but relies on knowledge gleaned only from an applicant's own disclosure, then hindsight has been impermissibly applied. In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

Appellant submits that the Examiner has not met his burden in establishing a *prima facie* case of obviousness because the prior art does not objectively teach or suggest all of the recited claim elements, nor are all of the recited claim elements obvious from the nature of the problem itself. It is submitted that the Examiner is unwittingly relying on impermissible hindsight reasoning, as will now be explained.

Independent Claim 1 relates to a computer-readable medium having a database stored thereon that is compatible with multiple end-user systems and that includes a data section having a plurality of data records, and a structure section having at least a feature mask, and recites, *inter alia*, the feature mask including data that indicates whether a particular one of the data records is compatible with one or more of the end-user systems.

Independent Claim 15 relates to a method of generating a database that is compatible with multiple end-user systems that includes generating a data section, storing a plurality of data records in the data section, and recites, *inter alia*, generating a feature mask that includes data that indicates whether a particular one of the stored data records

is compatible with one or more of the end-user systems.

Independent Claim 37 relates to a computer system that includes a processor, memory in operable communication with the processor, and a database stored in the memory that is compatible with multiple end-user systems and that includes a data
5 section having a plurality of data records, and a structure section having at least a feature mask, and recites, *inter alia*, the feature mask including data that indicates whether a particular one of the data records is compatible with one or more of the end-user systems.

In the final Office action the examiner alleges that Brookler et al. discloses a structure section. In support of this, the examiner recites the definition of a database
10 schema from the Microsoft Computer Dictionary. See final Office action at 3.

Consistent with what Appellant has argued throughout the prosecution of this application, the schema of a database has nothing whatsoever to do with whether or not it includes a structure section. Rather, the database schema merely defines, as the definition in Microsoft Dictionary indicates, the formal description of the overall structure of a
15 database. That is, the names of the tables, the names of the columns of each table, and the type and other attributes of each column. Just because a database is defined by a schema, which just about every database is, does not mean that it includes a structure section.

The examiner, at page 22 of the final Office action, somehow attempts to refute
20 the above arguments by pointing out that col. 1, ll. 28-29 of Brookler et al. states “a schema defines the structure of a database.” It is undisputed that most, if not all, databases have a “structure.” However, not all databases, even those with a defined “structure,” include a structure section. The examiner nonetheless goes on to state that,

“[i]n this instance, the schema is considered to represent the structure section.” Final Office action at 22. This, of course, is a convenient consideration, given that the examiner has the luxury of Appellant’s own disclosure. Appellant submits that such a consideration would not, and indeed could not, have been made without this luxury.

5 Notwithstanding the erroneous application of Brooker et al. that was just noted, the examiner further relies on Hartman et al. as disclosing a feature mask that includes data that indicates whether a particular one of the data records in a database data section is compatible with one or more end-user systems. Appellant, as argued throughout the prosecution of this application, do not agree that Hartman et al. even remotely discloses
10 this claim feature, let alone provides any suggestion or motivation for providing this feature.

 The examiner alleges that Hartman et al. discloses the claimed structure section and feature mask at column 9, l. 44 through col. 10, l. 28. Final Office action at 3-4. However, what is disclosed in this section of Hartman et al. is the methodology that is
15 employed during the above-described binary attribute matching operation to efficiently determine whether a query profile matches a section (or chunk) of a record that is stored in a database. This clearly does not disclose, or even remotely suggest, providing a database with a structure section that includes a feature mask having data that indicates whether a particular data record is compatible with one or more end-user systems.

20 The examiner, at page 22 of the Office action, expresses her disagreement with the above-noted assessment of Hartman et al. by making the conclusory statement that “[t]he query profile *can* represent the user profile which is then matched against the records in the database to determine if the two records match, which is considered to

represent compatibility.” See final Office action at 22 (emphasis added). As with the examiner’s statements regarding Brookler et al., this statement is also one that is easily and conveniently made with the ready knowledge of the Appellant’s disclosure. In any event, Appellant submits that the capability of determining whether two records match is
5 not even remotely synonymous with providing a feature mask that includes data that indicates whether a particular one of the data records is compatible with one or more of the end-user systems.

Finally, in the final Office action the examiner alludes to arguments regarding features that are argued but not claimed. Appellant has searched the most recently filed
10 response, and finds that it includes no such argument. Although the response filed on July 6, 2006 did recite some of the advantages exhibited by the instant invention, these advantages were never presented in the form that the examiner alleges. Rather, the statements were made merely as an attempt to further illuminate the important advantages that the claimed invention provides.

15 In view of the foregoing, Appellant submits that the combination of Brooker et al. and Hartman et al. fails to establish a *prima facie* case of obviousness of independent Claims 1, 15, and 37. Moreover, because independent Claims 1, 15, and 27 are not obvious, then dependent Claims 2-14, 16-29, and 38-48 are also not obvious. In re Fine, *supra*.

20

II. CLAIM 49 IS NOT UNPATENTABLE UNDER 35 U.S.C. § 103 OVER
TANG ET AL. AND HARTMAN ET AL.

5 A. Hartman et al.

This reference was described above, and the description thereof will not be repeated.

B. Tang et al.

10 Tang et al. relates to a system and method for generating a minimum-cost airline flight plan from a point of origin through a set of fix points to a destination point.

C. Analysis

Independent Claim 49, consistent with the other independent claims, recites, *inter*
15 *alia*, a structure section that includes a feature mask, the feature mask including data that indicates whether a particular one of the navigational data records is compatible with one or more of the flight management systems. As noted above, neither Brookler et al. nor Hartman et al. are understood to disclose or suggest at least this feature. Moreover, without conceding that Tang et al. discloses or suggests what the examiner alleges in the
20 final Office action, upon review of this reference, Appellant submits that it also fails to disclose or suggest this feature.

In view of the foregoing, Appellant submits that the combination of Hartman et al. and Tang et al. fails to establish a *prima facie* case of obviousness of independent Claim 49.

IX. Conclusion

In view of the foregoing, Appellant submits that the final rejections of Claims 1-21 are improper and should not be sustained. Therefore, a reversal of the rejections in the final Office action dated April 9, 2007, is respectfully requested.

5

Respectfully submitted,

10 Dated August 30, 2007

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X. CLAIMS APPENDIX

Claims on Appeal

1. A program product, comprising:
 - 5 a) a database that is compatible with multiple end-user systems, the database comprising:
 - a data section that includes a plurality of data records; and
 - a structure section that includes at least a feature mask, the feature mask including data that indicates whether a particular one of the data records is
 - 10 compatible with one or more of the end-user systems;
 - and
 - b) at least one physical computer-readable medium having said database stored thereon.
- 15 2. The program product of Claim 1, wherein:
 - each data record has one or more features associated therewith; and
 - the feature mask data indicates whether each feature of a data record is compatible with one or more of the end-user systems.
- 20 3. The program product of Claim 2, wherein:
 - each data record includes at least a feature field containing one or more feature bits that represent each of the features associated therewith; and
 - the feature mask includes one or more feature mask records, each feature mask record including at least one or more compatibility fields each containing one or more

bits that indicate whether a particular one of the data records is compatible with one or more of the end-user systems.

4. The program product of Claim 1, wherein:

5 the data section comprises a plurality of data tables, each data table including a plurality of the data records; and

the structure section comprises a plurality of features masks, each feature mask at least associated with one of the data tables and including data that indicates whether a particular one of the data records in an associated data table is compatible with one or
10 more of the end-user systems.

5. The program product of Claim 4, wherein:

each data record in each data table includes at least a feature field containing one or more feature bits that represent each of the features associated therewith; and
15 each feature mask includes a plurality of feature mask records, each feature mask record including at least one or more feature mask values that indicate whether a particular one of the data records in the associated data table is compatible with one or more of the end-user systems.

20 6. The program product of Claim 1, wherein the structure section further comprises a system identification table that includes data that uniquely identifies each of the end-user systems.

7. The program product of Claim 6, wherein the system identification table comprises a plurality of system identification records, each system identification record associated with each of the end-user systems.

5 8. The program product of Claim 1, wherein:
the data section comprises a plurality of data tables, each data table including a plurality of the data records; and
the structure section further comprises a table pointer table that includes data that uniquely describes at least each of the data tables.

10

9. The program product of Claim 8, wherein:
the table pointer table comprises a plurality of table pointer records; and
at least one table pointer record is associated with each of the data tables.

15 10. The program product of Claim 9, wherein each table pointer record includes data representative of at least:

a location of the associated data table;
a number of the data records in the associated table; and
a size of each data record in the associated data table.

20

11. The program product of Claim 1, wherein:
each data record includes one or more fields; and

the structure section further comprises a field definition table that includes at least data representative of each of the data record fields.

12. The program product of Claim 11, wherein the structure section further comprises one or more return type tables, each return type table including data representative of a format of each of the data record fields.

13. The program product of Claim 1, further comprising:
a header section that includes data representative of indicia that is used to identify the database.

14. The program product of Claim 13, wherein the header section further includes data representative of a location of the structure section.

15. A method of generating a database that is compatible with multiple end-user systems, the method comprising the steps of:

generating a data section;

storing a plurality of data records in the data section; and

generating a feature mask that includes data that indicates whether a particular

one of the stored data records is compatible with one or more of the end-user systems.

16. The method of Claim 15, further comprising:

associating one or more features with each data record,

wherein, the feature mask data indicates whether each feature of a data record is compatible with one or more of the end-user systems.

17. The method of Claim 16 further comprising:
5 including at least a feature field in each data record;
supplying each feature field with one or more feature bits that represent each of the features associated therewith;
including one or more feature mask records in the feature mask; and
supplying each feature mask record with one or more feature mask values that
10 indicate whether a particular one of the data records is compatible with one or more of the end-user systems.

18. The method of Claim 15, further comprising:
dividing the data section into a plurality of data tables that each include a
15 plurality of the data records; and
generating a plurality of features masks that are each at least associated with one of the data tables and that each include data indicative of whether a particular one of the data records in an associated data table is compatible with one or more of the end-user systems.

20

19. The method of Claim 18, further comprising:
including at least a feature field in each data record in each data table;

supplying each feature field with one or more feature bits that represent each of the features associated therewith; and

including one or more feature mask records in the feature mask; and

supplying each feature mask record with one or more feature mask values that

5 indicate whether a particular one of the data records in the associated data table is compatible with one or more of the end-user systems.

20. The method of Claim 15, further comprising:

generating a system identification table that includes data that uniquely

10 identifies each of the end-user systems.

21. The method of Claim 20, further comprising:

including a plurality of system identification records in the system identification table, each system identification record associated with each of the end-user systems.

15

22. The method of Claim 15, further comprising:

dividing the data section into a plurality of data tables that each include a plurality of the data records; and

generating a table pointer table that includes data that uniquely describes at least

20 each of the data tables.

23. The method of Claim 22 further comprising:

including a plurality of table pointer records in the table pointer table, at least one table pointer record is associated with each of the data tables.

24. The method of Claim 23, further comprising:

5 supplying each table pointer record with data representative of at least (i) a location of the associated data table, (ii) a number of the data records in the associated table and (iii) a size of each data record in the associated data table.

25. The method of Claim 15, further comprising:

10 including one or more fields in each data record; and
generating a field definition table that includes at least data representative of each of the data record fields.

26. The method of Claim 25, further comprising:

15 generating one or more return type tables, each return type table including data representative of a format of each of the data record fields.

27. The method of Claim 15, further comprising:

generating a structure section and including the feature mask therein;
20 generating a header section; and
supplying the header section with data representative of indicia that is used to identify the database.

28. The method of Claim 27, wherein the header section further includes data representative of a location of the structure section.

29. The method of Claim 15, further comprising:
5 including at least a feature field in each data record;
supplying each feature field with data representative of one or more features associated with each data record,
wherein the feature field of the data record having the requested data is compared with at least a portion of the feature mask to determine whether the requested data is
10 compatible with the end-user system.

37. A computer system, comprising:
a processor;
memory in operable communication with the processor; and
15 a database stored in the memory, the database compatible with multiple end-user systems and including:
a data section that includes a plurality of data records, and
a structure section that includes a feature mask, the feature mask including data that indicates whether a particular one of the data records is
20 compatible with one or more of the end-user systems.

38. The system of Claim 37, wherein:
each data record has one or more features associated therewith; and

the feature mask data indicates whether each feature of a data record is compatible with one or more of the end-user systems.

39. The system of Claim 37, wherein:

5 each data record includes at least a feature field containing one or more feature bits that represent each of the features associated therewith; and

 the feature mask includes one or more feature mask records, each feature mask record including at least one or more compatibility fields each containing one or more bits that indicate whether a particular one of the data records is compatible with one or
10 more of the end-user systems.

40. The system of Claim 37, wherein:

 the data section comprises a plurality of data tables, each data table including a plurality of the data records; and

15 the structure section comprises a plurality of features masks, each feature mask at least associated with one of the data tables and including data that indicates whether a particular one of the data records in an associated data table is compatible with one or more of the end-user systems.

20 41. The system of Claim 40, wherein:

 each data record in each data table includes at least a feature field containing one or more feature bits that represent each of the features associated therewith; and

each feature mask includes a plurality of feature mask records, each feature mask record including at least one or more compatibility fields each containing one or more bits that indicate whether a particular one of the data records in the associated data table is compatible with one or more of the end-user systems.

5

42. The system of Claim 37, wherein the structure section further comprises a system identification table that includes data that uniquely identifies each of the end-user systems.

10

43. The system of Claim 42, wherein the system identification table comprises a plurality of system identification records, each system identification record associated with each of the end-user systems.

15

44. The system of Claim 37, wherein:
the data section comprises a plurality of data tables, each data table including a plurality of the data records; and
the structure section further comprises a table pointer table that includes data that uniquely describes at least each of the data tables.

20

45. The system of Claim 44, wherein:
the table pointer table comprises a plurality of table pointer records; and
at least one table pointer record is associated with each of the data tables.

46. The system of Claim 45, wherein each table pointer record includes data representative of at least:

a location of the associated data table;

a number of the data records in the associated table; and

5 a size of each data record in the associated data table.

47. The database of Claim 37, wherein:

each data record includes one or more fields; and

the structure section further comprises a field definition table that includes at

10 least data representative of each of the data record fields.

48. The system of Claim 47, wherein the structure section further comprises one or more return type tables, each return type table including data representative of a format of each of the data record fields.

15

49. A flight management system, comprising:

memory;

a navigation database stored in the memory, the navigation database compatible with multiple flight management systems and including:

20 a data section that includes a plurality of navigational data records, and

a structure section that includes a feature mask, the feature mask

including data that indicates whether a particular one of the navigational data

records is compatible with one or more of the flight management systems; and

a processor configured to generate an aircraft flight plan based at least in part on the navigational data stored in the navigation database.

XI. EVIDENCE APPENDIX

No evidence pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 has been entered by the Examiner or relied upon by Appellant in the instant appeal beyond that which is

5 already contained in the as-filed application, as is delineated in the Arguments section of this Brief.

XII. RELATED PROCEEDINGS APPENDIX

As there are no related appeals and interferences, there are also no decisions rendered by a court or the Board of Patent Appeals and Interferences that are related to
5 the instant appeal.